

## PUBLICATION DATES FOR THE BOTANICAL PARTS OF THE PACIFIC RAILROAD REPORTS

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IN the present paper I present such data as I have been able to assemble concerning the exact dates of publication of the various botanical papers contained in the Pacific Railroad Reports. These reports, based upon explorations in the western United States between 1853 and 1855, and published by the War Department under the lengthy title, "Reports of Explorations and Surveys for a Railroad Route from the Mississippi River to the Pacific Ocean," include important botanical papers by Torrey, Gray, Engelmann, and others, in which were first described a large number of the characteristic West American plants. A study of the various volumes of the Pacific Railroad Reports reveals puzzling discrepancies between dates found on the title pages of the volumes, those on the initial leaf of the separate reports within each volume, and those found scattered through the text. In a search for precise information regarding the dates of publication of the botanical portions of the Pacific Railroad Reports, I have consulted the Historic Letter File at the Gray Herbarium and searched for contemporary mention of these papers. The letters of John Torrey and George Engelmann have supplied much detailed information.<sup>1</sup> The published proceedings of the Academy of Natural Sciences of Philadelphia, the American Philosophical Society, and the Academy of Science of St. Louis have also provided exact dates at which copies of the completed volumes of the Reports had been distributed from Washington. From these sources it has been possible to assign reasonably exact dates to the various botanical reports, accurate in most cases to within a month or two. In less disturbed times, when at least Torrey's letters at Kew and St. Louis and Gray's letters at Kew, New York, and St. Louis can be examined, it seems probable that additional information may be found which will establish an even more precise dating for these papers.

<sup>1</sup>Contemporary letters also help to date Torrey's and Engelmann's important botanical reports in vol. 2 of Emory's Report on the United States and Mexican Boundary Survey. Torrey wrote Gray, on Jan. 10, 1859, that he was preparing a list of errata from page-proof of his Mexican Boundary Report. Engelmann wrote Gray on April 5, 1859, that he had ordered separates of his account of the boundary Cacti but did not know if his report had been printed. On June 7, 1859, Torrey was expecting his printed report. Schott (in a letter at the N. Y. Botanical Garden, *vide* notation in the Gray Herbarium copy) stated that the botanical reports were issued before April 21, 1859. On June 2, 1859, Engelmann wrote Gray that he had seen the printed report, and on June 6, the volume was displayed at the session of the St. Louis Academy. Engelmann, in Sept., 1859, wrote that his separates were still in Washington and yet undistributed. The second volume of the Boundary Survey was obviously issued in May or late April, 1859. No advance separates of the botanical reports were issued.

The Pacific Railroad Reports appeared in two editions, first in octavo and later, much enlarged in scope, in quarto. In explanation of this procedure Torrey wrote Gray, on Sept. 14, 1854, "This [Lieut. Whipple's report] will be printed in the ordinary *pub. doc.* & then a revised edition will be ordered in which our illustrations can come & any additional descriptions & observations that may be ready. He says this is the only way, or the Natural History may be thrown out altogether."

The octavo first edition of the Pacific Railroad Reports appeared as House Executive Document no. 129, 33rd Congress, 1st Session. Announced as a three-volume work, only two volumes of text were published. There are only two botanical reports in the octavo edition, Torrey's catalogue of the plants collected on the Pope Expedition and Bigelow's account of the forest trees and vegetation observed during the Whipple Expedition. These botanical reports were not illustrated. Bigelow's report was reprinted apparently without change, in the second, quarto, edition of the Reports. The account of the plants collected on the Pope Expedition, a taxonomic paper, was subsequently much changed in the second edition and merits special comment.

The botanical report of the Pope Expedition appeared on pp. 307-324 of part 2, of volume 2, of the octavo edition. Although Torrey wrote Gray, on Nov. 4, 1854, just after he had sent the manuscript of this report to Washington, that, "You have had a larger share in the Catalogue than I . . .," the catalogue as published gives Torrey as sole author. This first edition of the botanical report on the Pope plants has become a forgotten item in the literature of West American botany. There is no copy of the report at the Gray Herbarium, and Dr. H. W. Rickett (in lit. Aug., 1942) writes that there is none in the library of the New York Botanical Garden. In their later writings Torrey and Gray, apparently considering the octavo report as a preliminary one and superseded by the enlarged and changed quarto edition published about two years later, invariably cited only the second edition of the Pope Report. Later botanists, unaware of the early edition, have done the same. The first edition of the Pope Report can be dated reasonably well. The publication of the octavo edition of the Pacific Railroad Reports is noted in the American Journal of Science (**20**: 299) for September 1855. Engelmann, however, saw the publication several months earlier, for, writing Gray on June 12, 1855, he states, "I see in some of the Pacific Railroad Reports Torrey has mentioned without describing several new *Euphorbia* coll. before by Wright or Fendler — going ahead of me — but it serves me right." The first edition of the Pope Report, accordingly, must have appeared before the middle of 1855, probably in the spring of that year.

The following three specific names, none listed in Index Kewensis, were published in the first edition of Pope's Report and abandoned in the second edition: *Ehretia ? hispida*, nomen (p. 320), *Stegnocarpus ? Ciocarya* (p. 320), and *Camassia Gawleri* (p. 323). In the second edition they are replaced by the following newly published names: *Eddyia hispidissima*,

*Stegnocarpus canescens*, and *Camassia Fraseri*. The names *Eritrichium crassisepalum* (p. 321), *Euphorbia Wrightii* (p. 321), *Euphorbia dilatata* (p. 321), *Euphorbia albomarginata* (p. 321), and *Euphorbia Fendleri* (p. 321), nomina nuda in the first edition, were supplied with descriptions in the second edition. The well-known species *Selenia dissecta* (p. 308), *Stenandrium barbatum* (p. 317), and *Pentstemon Fendleri* (p. 318) were well-described in the first edition of the report. The species *Astrophyllum dumosum*, *Ammoselinum Popei*, *Phacelia Popei*, *Eritrichium pusillum*, and *Ptilocalyx Greggii*, published in the second edition, are not mentioned, at least by name, in the first edition.

The second edition of the Pacific Railroad Survey Reports was published in sumptuous quarto volumes. The text of the first edition was reprinted with few changes, and many new special reports with many plates were added. This second edition is the one represented in most libraries. It appeared in two forms, differing only in title-page, as Senate Executive Document no. 78, and as House Executive Document no. 91, both of the 33rd Congress, 2nd Session. As originally planned the work contained eleven volumes. Subsequently two more volumes (numbered vol. 12, pt. 1, and 12, pt. 2) were added and published as House Executive Document 56, 36th Congress, 1st Session. In the completed work, botanical reports are found in volumes no. 2, 4, 5, 6, 7, and 12<sup>2</sup>.

Volume 2 of the quarto reports contains the botanical reports for the Beckwith and the Gunnison Expeditions, and the second edition of the botanical report for the Pope Expedition. These reports are by Torrey and Gray. The complete volume was issued at Washington in 1857. Within this volume Captain Pope's "Explanatory Note to the Geological Report" bears the printed date Feb. 18, 1857. Torrey, in a letter to Engelmann dated July 30, 1857 (quoted by Rodgers in his book "John Torrey," p. 248), speaks of the Beckwith and Pope reports as "contained in a volume [of the Pacific Railroad Reports] just published . . ." On October 6, 1857, the volume had been received from Washington and accessioned at the Philadelphia Academy.

Torrey and Gray had reprints of the botanical reports published in vol. 2 before the end of June 1857. On Oct. 20, 1855, Torrey had written Gray that the botany of the Beckwith (and Gunnison) report was printed and that separates were ordered. In his letter of Jan. 9, 1856, he stated that the botany of the Pope report was not yet printed, and on March 12, 1856, he asked if Sprague was still at work on the plates for that report. The authors seem to have received the printed plates for the Pope Report shortly before Torrey's letter of June 23, 1857. At that time Torrey wrote, "You probably rec'd from me, lately, a parcel containing 50 sets of plates for Bot. Pope. You can return the 10 extra copies of the Beckwith letter-press, or I will send you the plates for them — just as you like. My parcel for England will go soon. A friend will take care of it. I will send Pope's and Beckwith's Rep. to Hooker, etc." The botanical parts of the Pope and Beckwith-Gunnison reports are apparently those acknowledged and commented upon by Sir William Hooker in his letter to Gray, dated Nov. 27,

1857. These same reports (with complete text and plates) were reviewed by Hooker in the final issue of the *Kew Journal of Botany*, **9**: 376 (Dec. 1857). He states that the botany of the Beckwith-Gunnison reports was "Published January 7, 1857." No such date is given for the botany of the Pope Report. Torrey's letter of June 23, 1857 (already quoted above) does seem to infer that the complete botany of the Beckwith-Gunnison report and at least the text of the botany of the Pope Report had been in the hands of the authors for some time. While Hooker may have been correct in stating that the botanical part of the Beckwith-Gunnison Report had been "published January 7, 1857," there is no evidence that it was distributed by the authors until after June 1857, and little if at all before the time when the whole of vol. 2 was available to the general public at Washington. I believe that the effective dates of publication of the botanical reports for the Beckwith-Gunnison and Pope expeditions is either June or early July, 1857. This date is two years later than the date of publication for the botanical appendix in the first (octavo) edition of Pope's Report.

Volume 4 of the quarto reports contains the important botanical catalogues by Torrey, Engelman, Bigelow, and Sullivant, based upon material assembled during Whipple's Expedition.

On May 22, 1857, Torrey wrote Gray that the text of his part of the Whipple Report was printed and that he was preparing the index, and on July 22, 1857, that his extra copies were ready but the plates were still unprinted. On Aug. 12, 1857, he wrote, "A day or two ago I was surprised to get from Dr. Bigelow a printed copy of the Bot. of Whipple's Exped. containing our portion, together with the Cactaceae, an introductory article on the Bot. Geography explored & a memoir on the principal forest trees found on the route . . . I have 150 copies of the plates of Cactaceae, which were intended for extra copies of text that Dr. B. promised, long ago, to have struck off. I did not learn till yesterday that the lithographer had printed these. My own extra copies of Bot. have not yet arrived, & I rather think that they may include Bigelow's articles." On Aug. 22, 1857, having just returned from Montreal, Torrey wrote, "My extra copies of Plant. Whipple have not arrived, but I found a single one (sent by Express) on my table this morning. It contains Bigelow's two reports & Sullivant's Mosses, the latter not in a previous copy sent two weeks ago. I am mortified to find so many typographical errors . . . Perhaps the Superintendent of Public Printing will authorize the insertion of the *errata list* in all copies." On Sept. 2, 1857, Torrey received word from Washington that 150 copies of the botanical report had been shipped to him. These arrived by Sept. 10th, when he wrote, "They do not contain Bigelow's article, Cactaceae, nor Sullivant's mosses. So if the Cactaceae have not been received for Engelman we must fall back on Bigelow for these, who has 200 copies of the entire Botany. I have 200 copies of the Cact. plates . . . We can distribute our part of the Botany without Bigelow's, & your 50 copies shall be sent as soon as I can get them ready — but you had better not distribute till we get errata printed." Engelman, travelling in Europe, did not get

his reprints until May, 1858. C. W. Short (Louisville, Kentucky) wrote Gray on Sept. 10, 1857, "Mr. Sullivant has been so good as to send me a copy of his very beautiful Mosses of Whipple's survey." Although the volume of the Pacific Railroad Reports containing the Whipple Reports was only received at the Boston Society of Natural History on Jan. 1, 1858, at the Philadelphia Academy on Jan. 5, 1858, and at the St. Louis Academy on March 8, 1858, and was first reviewed in the American Journal of Science (**25**: 149) for Jan., 1858, the evidence is clear that Torrey, Gray, Bigelow, and Sullivant had sufficient copies of the botanical portions of the Whipple Report to establish Sept. 1857 as the effective date of issuance for this important botanical volume.

Volume 5 of the quarto reports contains the two botanical reports based on the collections of the Williamson Expeditions, one by Torrey, the other by Durand & Hilgard. The substance of the Durand & Hilgard report first appeared as "Plantae Heermannianae" in the Journal of the Philadelphia Academy **3**: 37-46 (Nov. 1854). A reprint of this article was sent Gray by Durand with a covering letter dated Dec. 4, 1854. The revised report on the Heermann collections was in print at Washington before Sept. 2, 1857, for on that date Torrey wrote that, by some mistake, he had received 150 copies of Durand & Hilgard's report intended for the authors.

Torrey's report, on the plants collected by Blake during the Williamson Expeditions, was probably printed much later. Concerning this report there is only one reference in his letters which may be significant. On June 12, 1858, he wrote Gray, "As to those plates of Blake and Antisell's Repts. I don't mean to let you pay for any unless I learn that some extra copies of the letter press can be obtained from the Public Printer." The whole volume, containing Torrey's report, was displayed at the St. Louis Academy on March 22, 1858. There is no reason for believing that Torrey received advance reprints. The effective date of Torrey's report is probably the date of issuance of the complete volume in Washington, about Feb., 1858.

Volume 6 of the quarto reports contains the botanical reports resulting from the Williamson & Abbot Expeditions in 1855. The botanical reports were organized and partially written by J. S. Newberry. On July 23, 1857, Newberry, in ill health, wrote Gray, asking him to read all the proofs of the botanical report which would soon become available. On Sept. 2, 1857, after learning that Newberry was to join a new expedition in the West, Torrey wrote Gray, "What is to be done with Newberry's Report? If he goes with Ives you will probably attend to proof reading . . ." On April 5, 1858, the completed volume was displayed at the session of the St. Louis Academy. The volume probably first appeared in Washington in March, 1858.

Volume 7 of the quarto reports contains Torrey's report on the collections of Parke's Expedition. On Sept. 10, 1857, Torrey wrote, "Two days ago I rec'd proofsheets of a small report that I prepared for Antisell (Parke's Exped.). An officer saw them & begged . . . that I might see them before being worked off. They permitted him to do so but said, if the sheets were not returned by next mail, the printer should proceed without corrections.

Part of the work had already been printed & I did not know that it was in press!" Torrey's letter of June 12, 1858, already quoted in connection with his account of Blake's plants (vol. 5), is the only other reference to this report in his letters to Gray. F. W. Vaughn, writing for A. A. Humphreys of the Office of the Pacific Railroad Surveys, wrote Gray on May 8, 1858, that volumes 5, 6, and 7 of the reports were being sent him. Volume 7 was available at the Philadelphia Academy May 11, 1858, and was displayed at the St. Louis Academy on May 17, 1858. The volume probably came from the press in Washington in April 1858.

Volume 12, part 2, of the quarto reports contained the final expanded report of Stevens' explorations across the northern United States. The botanical papers it contains are written by Gray and Cooper. I have no detailed information concerning this report. The publication of the report was authorized by the U. S. House of Representatives on March 25, 1860. The volume was received at the Boston Society of Natural History on Feb. 12, 1861. It was displayed at the St. Louis Academy on June 17, 1861. The Library of Harvard University did not receive its copy until Aug. 19, 1861. The volume, accordingly, was published probably late in 1860 or in Jan. 1861.

The dates of publication for the botanical papers published in the two editions of the Pacific Railroad Reports may be summarized as follows:

FIRST EDITION (in octavo)

Volume 2: Botany of the Pope Report, by Torrey before June 1855

SECOND EDITION (in quarto)

Volume 2:	Botany of Beckwith and Gunnison Reports, by Torrey & Gray	about the middle of 1857
	Botany of Pope Report (2nd edition), by Torrey & Gray	about the middle of 1857
Volume 4:	Botany of the Whipple Report	advance reprints Sept. 1857
Volume 5:	Botany of Williamson Report: Heermann collections, by Durand & Hilgard	advance reprints Sept. 1857
	Blake collections, by Torrey	about Feb. 1858
Volume 6:	Botany of Williamson & Abbot Report	about March 1858
Volume 7:	Botany of Parke Report, by Torrey	about April 1858
Volume 12 <sup>2</sup> :	Botany of Stevens Report	Jan. 1861 or late 1860

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